Fraser River Estuary
Management Program

A Recommended Port and Industrial Development Strategy

Port and Industrial Development Activity Work Group

February, 1991

Government of Canada Gouvernement du Canada

Province of British Columbia

FRASER RIVER ESTUARY
MANAGEMENT PROGRAM

A RECOMMENDED PORT AND INDUSTRIAL DEVELOPMENT STRATEGY

Prepared for the

Management Committee Executive

Prepared by the

Port and Industrial Development Activity Work Group

February, 1991

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Acknowledgements

The Port and Industrial Development Activity Work Group acknowledges and appreciates the efforts of those who participated on the Committee in the development of the strategies and the review of the numerous draft documents.

The Committee extends its appreciation for the contribution made by agencies in providing staff time for our Work Group.

The Committee also thanks the members of the public involved in the review process. The time taken to telephone, write and /or attend the workshops and the input received have been valuable in the completion of the document.

It is not possible, given the large number of individuals involved in the development and review of these documents, to name them individually. However, two individuals deserving of recognition are Paul Rollo of G.P. Rollo & Associates Ltd. for his work in developing the technical report which formed the basis for the strategies and Dawna Jones of Stratcom Planning for her work in guiding public input to the document.

Executive Summary

The Port and Industrial Development Activity Work Group of the Fraser River Estuary Management Program (FREMP) was formed to examine development trends and future land requirements for industries requiring sites with access to the waters of the Fraser River estuary.

The Work Group had the following objectives:

- to determine the supply of and demand for land from these industries for the next 20 years,
- to identify and designate areas suitable for water-dependent industries,
- to prepare land use strategies that support the growth of these industries.

The Work Group's mandate was to examine a 20-year period. It became apparent that a longer view should be taken in analyzing future land requirements. Accordingly, the Work Group has commented on regional growth trends and development issues that may emerge and their evolution following the study period.

This report assesses the major issues that affect waterfront industrial land development in the study area. The study does not account for broader global trends which may impact on the validity of the forecasted scenarios. Excluding these influences, the forecasts indicate that there will be a critical shortage of waterfront industrial land by 2010 unless actions are taken now to protect the supply of undeveloped land.

To this end, the Work Group proposes several strategies and supporting actions for consideration by the FREMP Executive Committee. The proposed strategies should not be considered in isolation. Subsequent action will include establishing links between the work of the Port and Industrial Development Activity Work Group and the other work groups (Appendix Two) toward a management plan for the Fraser River Estuary Management Program. It is understood that the strategies proposed will be subjected to further definition, analysis and assessment.

Port and Industrial Development Program Strategy

1.0 Encourage Nodal Development: concentrating development in large industrial nodes (300+ acres) may reduce the conflict between industry and other potential users, and offer other benefits such as shared facilities and reduced costs.

Implementation Options

Encourage Landbanking: setting land aside in landbanks is an option available to ensure an adequate supply of land for water-dependent industry.

Add Additional Lands to the Regional Inventory: encouraging municipal governments to add land areas to the regional industrial inventory.

2.0 Encourage more Intensive and Efficient Use of Present Sites: combining, where sites are not being used to capacity, compatible uses and seizing opportunities to rehabilitate obsolete sites for alternate uses.

3.0 Pursue Coordinated Approach to Long Term Water-Dependent Industrial Land Use: working regionally toward the following goals in establishing coordinated land use planning:

- Establish regional and municipal objectives and priorities;
- Examine alternatives for municipal governments to ensure a long-term supply of land;
- Support efforts by municipalities to expand the amount of available land;
- Generate accurate and current data regarding the relative relationship between supply and demand requirements. This will indicate emerging economic trends throughout the estuary.

4.0 Require Industry to be Environmentally Responsible: communicating the principles of habitat mitigation and compensation to industry to ensure that valuable habitat resources are protected.

5.0 Increase Awareness and Understanding of the Needs of Water-Dependent Industry: initiating, through FREMP and in conjunction with the GVRD, an information program to raise awareness of the needs of water-dependent industry and an ongoing consultation process to provide an opportunity for interested parties, such as industry and interest groups, to participate in the planning process.

6.0 Support Recreational Land Use in the Estuary: creating Recreational Units (as envisioned by the Recreation Work Group) to be compatible with industrial nodes, may help minimize alternate use conflict.

In addition to outlining proposed strategies and actions, the *RECOMMENDED PORT AND INDUSTRIAL DEVELOPMENT PROGRAM STRATEGY FOR THE FRASER RIVER ESTUARY* provides information to the FREMP Management Committee Executive to enable them to make informed decisions on how to best accommodate growth of water-dependent industry in the integrated management plan. The public consultation process yielded valuable information to be considered in decision making. This document has been generated from the detailed analyses contained in the companion document, the *PORT AND INDUSTRIAL LAND SUPPLY AND DEMAND STUDY*.

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1.0 INTRODUCTION

The Port and Industrial Development Activity Work Group of the Fraser River Estuary Management Program (FREMP) was formed to examine development trends and future land requirements for industries requiring direct access to the waters of the Fraser River estuary (refer to Figure 1, The Study Area).

Specifically, the Work Group has undertaken the following tasks:

- Determining the supply of and demand for land from these industries during the next 5, 10, 15 and 20-years.
- Identifying and designating areas suitable for water-dependent industries.
- Preparing land use planning strategies that support the future growth of these industries.

In preparing these strategies, the Work Group was guided by FREMP's superordinate goal:

> *To provide the means for accommodating a growing population and economy while maintaining the quality and productivity of the Fraser River Estuary's natural environment.*

While the Work Group's mandate was to examine a 20-year period, during the course of the study it became apparent that a much longer time horizon, up to 50 years, should be used to analyze land requirements of industries requiring waterfront locations. Accordingly, the Work Group has commented on regional growth trends and development issues that may evolve following the 20-year study period (refer to Section 3.0).

The Work Group report assesses the major issues affecting waterfront industrial land development in the study area, including: growing public concern for the environment; conflicts between competing land uses, particularly between industry and other uses; the decreasing supply of land for water-dependent industries; and the public perception that either there is ample land to accommodate the future needs of industry or that industrial use should be a lower priority in land allocation regardless of the impact on

the regional economy. The parameters of the study did not include accounting for broader global trends, dynamic in nature and scope, which may have an impact on the validity of the forecasted scenarios. The Work Group cautions the Management Committee Executive (MCE) that these dynamic trends can cause complete dislocation of the data used to develop these strategies. For example, the fluctuating value of the Canadian dollar will impact on trading patterns.

The Work Group recommends that the MCE endorse the viability of water-dependent industry use in the estuary and define its place to ensure that dislocations can be dealt with in an orderly manner. It is understood that the strategies proposed must be subjected to further definition, analysis and assessment of their feasibility. The implications of implementation, once defined, would be considered in determining which of the strategies are acted upon, when, and by whom. This report should be considered as a long range planning tool; it may not synchronize with existing Official Community Plans (OCP). The process of developing the estuary's integrated management plan, must include examining all existing planning structures to ensure that they facilitate rather than inhibit the implementation of the integrated management plan. For example, the Official Community Plan's can be a powerful tool in implementing the integrated management plan. We emphasize that this report should not be considered in isolation; Management Committee Executive actions taken subsequent to the receipt of this report must include establishing a structure where all interested parties may participate in developing the integrated management plan.

In completing the report, the Work Group has benefited from the analyses and recommendations of other FREMP work groups dealing with log management, recreation, habitat, waste management, water quality, environmental emergencies, navigation and dredging.

The culmination of the Work Group's activities is the *RECOMMENDED PORT AND INDUSTRIAL ACTIVITY PROGRAM STRATEGY FOR THE FRASER RIVER ESTUARY*, (see Section 4.0) a report which is intended to make information available to the MCE to enable them to make informed decisions on how best to accommodate growth of water-dependent industry in the integrated management plan. This document has been generated from the key findings emerging from the detailed analyses contained in a companion document, the *PORT AND INDUSTRIAL LAND SUPPLY AND DEMAND STUDY*.

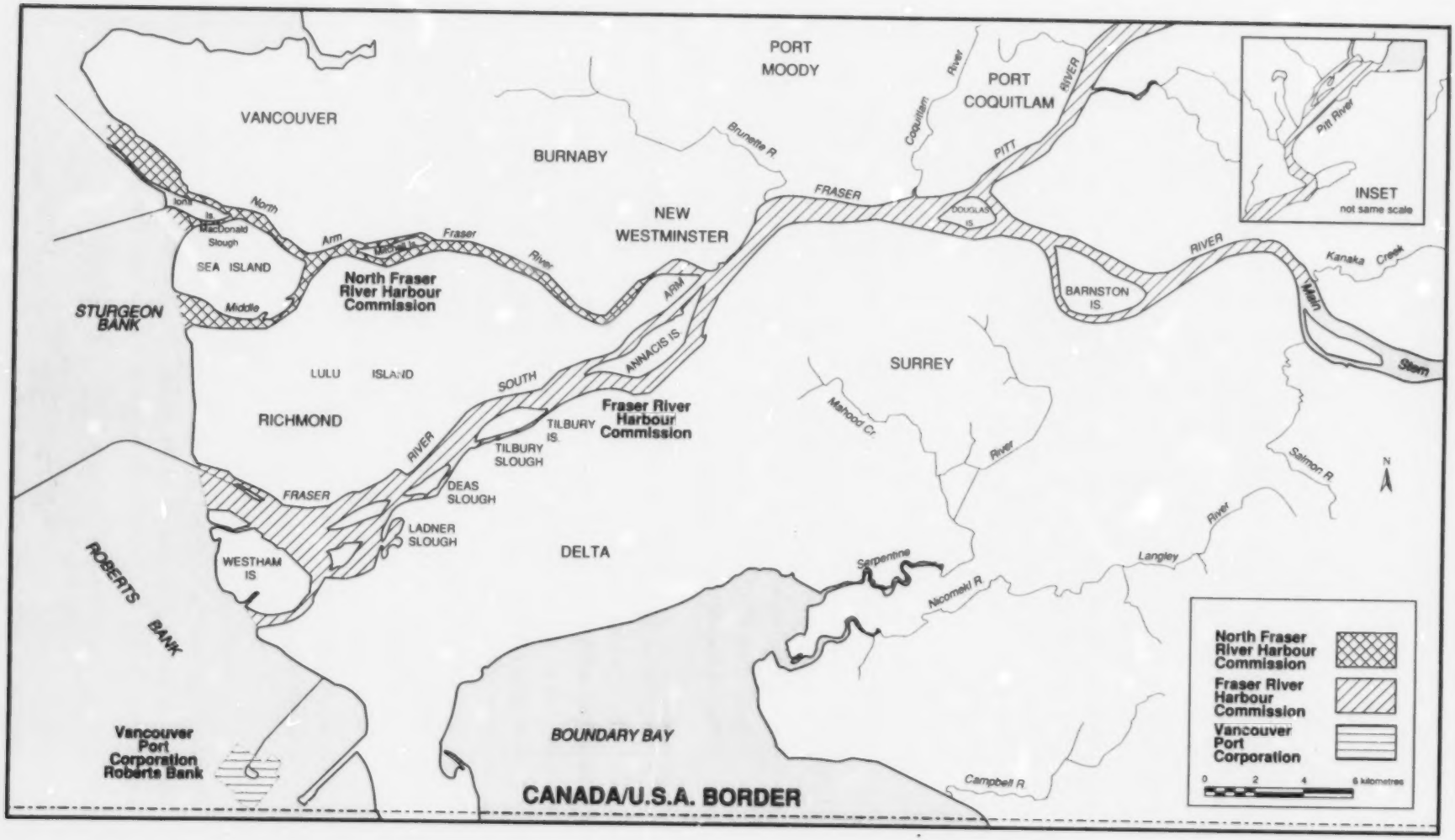

Figure 1: The Fraser River Estuary

2.0 INDUSTRIES REQUIRING ACCESS TO WATER

The focus of this report is the approximately two hundred industrial companies in the study area requiring waterfront locations or access to the waters of the study area, i.e., the Fraser River, Pitt River and the outer banks. These industries can be characterized as:

- Marine Terminals: water-based trans-shipment facilities that provide, on a fee for service basis, a wide range of storage, handling and shipping services to industries importing or exporting materials and products (e.g. Annacis Auto Terminals, Fraser Surrey Docks, Fraser Wharves, Westshore Terminals, and the B.C. Ferry terminal at Tsawwassen.)

- Terminal Support/Related Uses: companies offering services or products to complement the terminal function. These companies can be located at or near the terminal. These uses include: bulk distribution and storage centers, container transloading and transfer operations, ship chandlery warehouses, railroad intermodal yards, trucking companies, customs, shipping services (including distribution, warehousing, packaging, labelling), light manufacturing-final assembly operations.

- Industries Requiring a Waterfront Location: industries that must be located on the river to facilitate the movement of raw materials and finished products. Examples include: lumber mills, fish processing plants, construction aggregate storage sites, some petrochemicals, shipbuilding and repair, marina and aviation (seaplanes).

- Industries Requiring Access to Water: industries whose production facilities need not be located on the river, but that depend upon water transportation. An example is heavy equipment manufacturing/assembly or repair that takes place near the river and utilizes nearby barge-loading or dock facilities to ship equipment and materials to and from coastal B.C. or U.S. (or deepsea) locations.

For the purposes of this paper, industries that must locate on or near the waters of the study area are referred to as being either "marine terminals" or "water-dependent industries". Table 1 illustrates the range of uses within the study area.

Table 1
Waterfront Industrial Uses in the FREMP Study Area, 1989

Industrial Use	FRHC Total	NFHC & VPC	
Construction supplies/aggregates	6	5	11
Marine terminals	3	1	4
Transport, coastal freight/storage	16	12	28
Construction (non marine)	11	3	14
Chemical/fertilizer	2	0	2
Forestry related	44	19	63
Fishing related	17	7	24
Fuel	5	2	7
Marina	12	9	1
Ship construction and repair	16	4	20
Misc. manufacturing	12	0	12
Total	144	62	210

FRHC-Fraser River Harbour Commission
NFHC-North Fraser Harbour Commission
VPC-Vancouver Port Corporation

The major concentration of water-dependent industries occurs along the North Arm of the River. However, industries are scattered along the entire length of the study area. Figure 2 illustrates the major concentrations of industry in the study area while Table 2 illustrates characteristics of these areas, their suitability for marine terminals and water-dependent industry and the major issues affecting additional industrial development in these areas.

2.1 ROLE IN ECONOMY

The marine terminals and water-dependent industries of the study area play an important role in the regional, provincial and national economies:

- Collectively, these 200+ companies are a significant source of employment with a large collective payroll and have a major impact on the regional economy through expenditures for housing, retail and other goods and services.

- These companies make large capital investments in the region (e.g. the recent modernization of many of the forest industry's mills on the river) and contribute significantly to taxes at all levels of government.

- Many of these companies are part of or facilitate Canada's import/export trade, for example, forest companies which export products to Pacific Rim markets ship these through marine terminals.

- Many companies are essential links in coastal goods movement and trade.

- Approximately 40 wood-processing mills are located in the study area, the largest concentration of mills in the province.

TABLE 2 - PAGE 1

DESCRIPTION of WATERFRONT INDUSTRIAL AREAS in FREMP STUDY AREA

Munic.	Map Number	Industrial Area	Primary Waterfront Use (1)	Projected Future Industrial Use (1)	Port and Industrial Recommended Development Objectives	Deep Sea Coastal(2)	Access by: Rail	Road	Water	Municipal Services: Water	Sewer	Power	Expansion Potential	Support for Addnl. Indus. Development in Area from (3): OCP	Zoning	Competing Uses (4): Res	Rec	Ind	Cons	Ag	Comm	Current Issues Affecting Land Use	Long Term Suitability for(5): Marine Terminal	Terminal Support	Water Dependent
Richmnd.	1	Steveston	Fish	Fish,Urb	maintain fishing+ support uses	C	X	X	X	X	X	X	no	Y	Y	X	X	X	X		X	urban encroachment			X
Richmnd.	2	S.Garden City	For	For	possible future coastal terminal	C	X	X	X	X		X	yes	N	N					X		agricultural land reserve	Xd	X	
Richmnd.	3	#5 to Rice Mill Rd.	For	For	maintain for water dependent uses	C	X	X	X	X		X	limited	Y	Y		X					none	Xd	X	X
Richmnd.	4	Rice Mill to #9 Rd.	Term	Term	develop marine terminal	D	X	X	X	X		X	yes	US	US		X		X	X		cost of municipal services	Xd	X	
Richmnd.	5	#9 Road to Boundry Rd.	MxMar	MxMar	maintain for water dependent uses	C	X	X	X	X		X	limited	US	US	X	X		X	X		encroaching residential			X
Richmnd.	6	Iona Isl.	Sewage	Sewage	consider for coastal terminal	C		X	X	X		X	yes	N	N		X		X	X		conservation, urban encroachment, recreation	Xc	X	X
Richmnd.	7	Oak St.Br. to Knight	For, Ind MxMar	Same	maintain + improve area quality	C	X	X	X	X	X	X	no	Y	Y			X				urban encroachment			
Richmnd.	8	Mitchell Island	Ind	Ind	ensure industrial retention	C		X	X	X		X	no	Y	Y			X				urban encroachment, access, quality of area			X
Richmnd.	9	Knight to #7 Rd.	Mx Mar	Same	maintain industrial character	C	X	X	X	X	X	X	no	Y	Y		X	X				conservation, very narrow land area			X
Richmnd.	10	Tree Island	For	Same	maintain industrial character	C	X	X	X	X		X	yes	N	N	X	X	X	X			urban encroachment, log storage			X
Richmnd.	11	Airport North	AirSup	Same	develop to ensure growth of airport	C	X	X	X	X		X	yes	N	N		X	X	X			industrial discharges status of airport expansion proposals			X
Van.	12	Marpole to Knight St.	For, Mar MxMar	Same	maintain+use as long as possible	C	X	X	X	X	X	X	yes	N	N		X	X			X	encroaching commercial and non waterdependent industries			X
Burnaby	13	Big Bend	Ind	Same	integrate industrial+ other uses	C	X	X	X	X		X	yes	Y	Y		X	X	X			environment, conservation, growth of non water dependent industries			X
NewWest	14	Queens-borough	For+Mx Ma	Urb	maintain trans corridor for industry	C	X	X	X	X		X	no	Y	Y	X	X	X	X		X	urban encroachment			X
NewWest	15	20th Street	MxMar	Urb	maintain trans corridor for industry	C	X	X	X	X	X	X	no	Y	Y	X	X	X	X		X	urban encroachment			
Delta	16	Roberts Bank	Term.	Same	expand terminal	D	X	X	X	X	X	X	yes	N	N		X		X			conservation	Xd	X	X
Delta	17	Ladner	Fish	Fish,Urb	maintain fishing	C	X	X	X	X	X	X	no	Y	Y	X	X		X		X	urban encroachment			X
Delta	18	Tilbury Term.	Misc.	Same	attract water users+ increase throughputs	D	X	X	X	X	X	X	yes	Y	Y			X	X			conservation, recreation	Xd	X	X
Delta	19	80th to Vitto	MxMar	Same	attract more water users	D	X	X	X	X		X	yes	Y	Y			X	X		X	relocation of River Rd.	Xd	X	X
Delta	20	NE Delta	Fish,For	Term.	develop deep-sea terminals	D	X	X	X	X		X	yes	Y	Y			X	X		X	conservation, recreation relocation of River Rd.	Xd	X	X
Delta	21	Annacis	Term. Ind	Same	attract water depen. users	D	X	X	X	X	X	X	yes	Y	Y		X	X	X			conservation, recreation non water dependent industries			
Delta	22	Boundry Bay -White Rock	Cons	Same	acknowledge conservation+recreation uses	C							no	N	N		X		X	X		predominate conservation, recreation			

TABLE 2- PAGE 2

DESCRIPTION of WATERFRONT INDUSTRIAL AREAS in FREMP STUDY AREA

Munic.	Map Number	Industrial Area	Primary Waterfront Use (1)	Projected Future Industrial Use (1)	Port and Industrial Recommended Development Objectives	Deep Sea Coastal(2)	Access by: Rail	Road	Water	Municipal Services: Water	Sewer	Power	Expansion Potential	Support for Addnl Indus. Development in Area from (3): OCP	Zoning	Competing Uses (4): Res	Rec	Ind	Cons	Ag	Comm	Current Issues Affecting Land Use	Long Term Suitability for(5): Marine Terminal	Terminal Support	Water Dependent
Surrey	23	Fraser Sry-Pattullo Br	Term	Same	enhance for terminal development	D	X	X	X	X	X	X	yes	Y	Y			X				transportation access, recreation, conservation	Xd	X	X
Surrey	24	Pattullo Br to Thornton	For	For,RR MxMar	protect existing industry	D	X	X	X	X		X	limited	Y	Y			X				expansion of Thornton Yards			X
Surrey	25	Thornton Yards	RR,YS	Same	protect existing industry	C	X	X	X	X		X	no	Y	Y			X				expansion of Thornton Yards			X
Surrey	26	Thornton to 104th	For	Same	consider for water dependent industry	C	X		X				yes	N	N		X	X	X		X	conservation, ind. encroachment+ mixed ownership			X
Unorg (GVRD)	27	Barnston Island	For,Ag MxMar	Same+	consider for water dependent industry	C			X	X		X	yes	N	N	X	X		X	X	X	ALR, road access, commercial use, conservation			X
Surrey+ Langley	28	104th to Katzie IR	For MxMar	For+	consider for water dependent industry	C	X	X	X	X	X	X	limited	Y	Y		X		X	X		adverse impact of forest industry			X
Langley	29	208th to Derby Reach	LS	Term	consider for marine terminal	D		X	X				yes	N	N		X		X	X		conservation vs industrial development			X
Coquit+ Po.Co.	30	Argue St to Pitt Bridge	LS,Ind	Same	develop team dock facilities	C		X	X	X		X	infill	Y	Y			X	X	X	X	conservation and non water industrial encroachment			X
Pitt M.	31	Green Point to Ford Rd	Ag,For	Term	consider for marine terminal	D	X	X	X	X		X	yes	N	N		X	X	X	X	X	conservation, recreation	Xd	X	X
Pitt M+ M. Ridge	32	Bonson to Hammond	For,Res	Res	protect existing industrial uses	C	X	X	X	X		X	limited	Y	Y		X	X	X	X	X	rail, conservation, urban encroachment, agriculture			X

NOTES:

(1) Industrial Users
- Ag agriculture
- AirSup airport support
- Cons conservation
- For forestry
- Ind industrial
- LS log storage
- Mar marina
- MxMar mixed marine
- Res residential
- RR railroad
- Term marine terminal
- YS yard storage
- Urb urban

(2) Deep Sea/Coastal
- Deep Sea D
- Coastal C

(3) Concept Endorsed for Addl. Industrial Develop. from Official Community Plans and Zoning Bylaws
- Yes Y
- No N
- Under Study US

(4) Competing Uses
- Res residential
- Rec recreational
- Ind industrial
- Cons conservation
- Ag agriculture
- Comm commercial

(5 Marine Terminal
- Xc coastal terminal
- Xd deep sea terminal

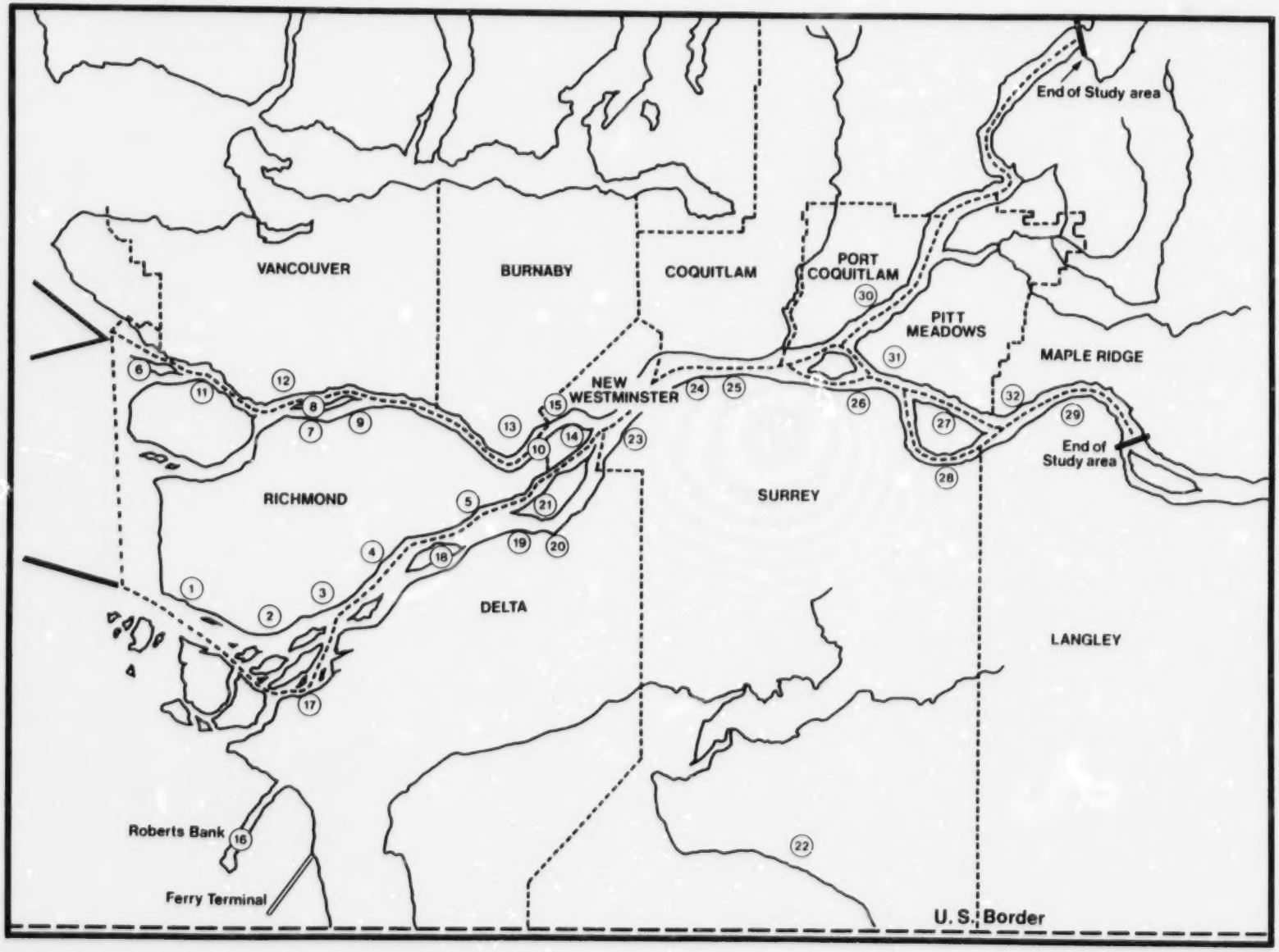
End of Study area
VANCOUVER
BURNABY
COQUITLAM
PORT COQUITLAM
PITT MEADOWS
MAPLE RIDGE
NEW WESTMINSTER
RICHMOND
SURREY
DELTA
LANGLEY
End of Study area
Roberts Bank
Ferry Terminal
U.S. Border
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FIGURE 2

2.2 FACTORS AFFECTING GROWTH

Prior to the 1970's, there was an abundant supply of waterfront land, and a low level of conflict between competing land uses. The steadily increasing demand for waterfront land, during the 1970's and 1980's, has created several issues that affect the ability of marine terminals and water-dependent industries to locate in the estuary.

These issues include:

- Increased demand for waterfront lands for non-water-dependent industries resulting from these industries seeking to avoid locating in the more distant and less preferred industrial areas of Surrey, Langley and the Fraser Valley. This trend constitutes the greatest threat to ensuring an adequate supply of land for water-dependent industry.

- The high rate of population growth and shift of population to the east is increasing conflicts between industrial use and urban development. These changes are demonstrated in Vancouver along South East Marine Drive and in New Westminster where waterfront residential development is displacing industrial development.

- Increased demand for land for residential and commercial development is forcing up land values throughout the estuary. As a result, increasing numbers of water-dependent industries are unable to afford land in preferred western locations (downriver of New Westminster). The pattern of land ownership and the provision of public infra-structure further reduces the amount of land available for waterfront development.

- Existing industries are selling land for urban development and attempting to relocate to other areas of the river. Increasingly, suitable new locations for these relocating industries from industrial areas such as Queensborough and Vancouver's southeast Marine Drive are not currently zoned for industrial development and may also be environmentally sensitive.

- Forest companies have acquired narrow bands of waterfront land for log storage, e.g. in the Fraser Mills area of Coquitlam. This pattern of ownership precludes adjacent users' use of the waterfront and reduces the supply of adjacent uplands for water-dependent industry.

- The location of roads and dykes adjacent to the river in major industrial areas such as Richmond, Coquitlam and Delta precludes industrial development. Road relocations such as those proposed for Delta's River Road will do much towards minimizing these impacts.

- The growing concern with environmental issues could affect the supply of land. Public opposition to use of waterfront land for industrial development will, in some instances, result in increased capital and operating costs to address environmental issues. These higher costs could preclude some water-dependent companies from being able to afford to locate in the estuary.

The Work Group recognizes the public's stake in land-use planning and advocates that marine terminals and water-dependent industries be responsive to these concerns. The alternative is to face increased public opposition to their presence and growth.

2.3 SUPPLY OF LAND

The Lower Mainland has an adequate supply of land to meet the total demand for industrial lands during the next 20-years, however, within 10 to 15 years there could be little remaining land in the study area for water-dependent industries.

- The *PORT AND INDUSTRIAL LAND SUPPLY AND DEMAND STUDY* indicates that there could be approximately 15,000 acres of industrial lands available for industry in the Lower Mainland over the next 20-years. Approximately 13,700 acres are located in the municipalities of the study area, with the bulk in Richmond, Delta, Surrey and Langley. (see Table 3).

- Of the estimated 13,700 acres that could be available for industrial development in the study area, 2460 acres or 18% of the total supply, can accommodate marine terminals and water-dependent industries. The greatest concentrations of waterfront lands are located in the western municipalities of Richmond and Delta.

- However, almost 45% of these 2,461 waterfront acres are held for future marine terminal development:

Roberts Bank	125 acres
Fraser Richmond	650 acres
Fraser Surrey	120 acres
Additional Fraser Port	200 acres
	1,095 acres,

leaving only 1,361 waterfront acres to meet the needs of water-dependent industries.

Table 3

Developable Industrial Land in Study Area (Acres), 1990-2010[1]

Supply	Total Developable Land			Waterfront Developable		
	1991-1996	1997-2010 *	Estimated Total	1991-1996	1997-2010	Estimated Total
Vancouver	30	30	30	0	0	0
Burnaby	800	300	1,100	29	60	89
Richmond	600	2,000	2,600	270	1,030	1,300
Delta[2]	1,100	600	1,700	540	0	540
New Westminster	110	0	110	31	0	31
Surrey	1,900	2,400	4,300	262	0	262
Coquitlam	350	0	350	0	0	0
Port Coquitlam.	340	10	350	11	0	11
Pitt Meadows	174	0	174	50	0	50
Maple Ridge	158	1,252	1,410	120	0	120
Langley	600	1,120	1,720	58	0	58
Total	7,260	7,460	13,690	1,371	1,090	2,461

Source: discussions with municipal planning departments.

1 Based upon discussions with each municipality in the study area. Excludes North Shore and Port Moody.

2 Does not include lands for possible expansion of Roberts Bank.

* This column includes all possible lands, whether designated (zoned or unzoned), or undesignated but with industrial potential as identified by the Work Group.

2.4 DEMAND FOR LAND

The *PORT AND INDUSTRIAL LAND SUPPLY AND DEMAND STUDY* presents demand forecasts of demand for industrial land from all industrial users as well as from water-dependent industries.

- Under the "most likely" growth scenario, these forecasts indicate that the annual demand for all industrial land (excluding marine terminal land requirements) will be approximately 575 acres per year during the 1990's and 450 acres per year during the first decade of the next century. This compares to an average 340 acres per year absorption during 1980-1988 (see Table 4).

- The demand for land from water-dependent industries (excluding marine terminal land requirements) is forecast to average approximately 40 to 50 acres per year, or less than 10% of the total demand for industrial land during the next 20-years. This compares to an average absorption of only 27 acres per year during 1980-1988 (approximately 8% of total industrial land absorption).

- Additional demand for waterfront lands will be derived from the growth of marine terminals. The *PORT AND INDUSTRIAL LAND SUPPLY AND DEMAND STUDY* presents commodity throughput[1] forecasts for 1990-2010 (Table 4). Forecasts of land requirements to accommodate increased throughput have not been prepared but, as discussed later in the study, there is more than sufficient land supply available to accommodate the growth of these throughputs far beyond the study period.

While the demand for land from water-dependent industries approximates the supply available, the increasing demand for waterfront lands from non-water-dependent industries is significantly reducing this supply.

1 A throughput is a volume of a commodity moved through a port facility over a specified period of time. The measurements are specific to each commodity. See Table 5 for an illustration.

Table 4

GVRD[1] Industrial Land Absorption 1980-1988.

Municipality	Acres
Vancouver	20
Burnaby	250
New Westminster	8
Richmond	540
Delta	675
Surrey	550
Coquitlam	200
Port Coquitlam	130
Pitt Meadows	50
Maple Ridge	75
Langley Township	150
Langley City	75
Add for Roads/services[2]	377
Total Absorption	3,100

Source: Discussions with municipalities of the study area.

1 Excludes North Shore and Port Moody

2 It is assumed that 30% of the above lands involved newly developed areas and that the estimates above of "net absorption" must be adjusted to reflect a 30% additional land requirement for roads, services and utilities.

Table 5
Deep Sea Cargo Forecast, Selected Products
Fraser River Estuary, 1990 to 2010

	TEU's	Potash & Sulphur	Steel	Coal	Autos	Wood-chips	Lumber	Pulp Paper Plywood	Liquid Petro-Chemical
1990	40	0	375	19	375	50	250	60	50
1995	100	0	400	20.5	400	75	275	100	560
2000	175	4000	425	21.8	400	100	300	125	650
2005	250	6000	450	23	410	125	325	150	718
2010	300	8000	500	24	415	140	350	175	793
Growth	260	8000	125	5	40	90	100	115	743

TEU's =TEU x 1000; One TEU is a 20-foot equivalent unit
Potash and Sulphur = millions of tonnes (for Roberts Bank)
Steel =tonnes x 1000
Coal =tonnes x 1,000,000
Autos =1000's
Woodchips = short tons x 1000
Lumber = tonnes x 1000
Pulp, paper, plywood = M.Tonnes x 1000
Petrochemicals = tonnes x 1000

Source: G. P. Rollo & Associates Ltd.

2.5 ADEQUACY OF LAND SUPPLY

While there would appear to be an adequate supply of industrial land in the region to accommodate the demand from all industrial users for the next 20-years, there is already a shortage of affordable industrial lands in the western municipalities of the region.

Most industries prefer Richmond and Delta over Surrey and the Fraser Valley. While there may be a surplus of overall industrial lands, there is already a shortage of affordable industrial lands in the western municipalities of the region. Non-water-dependent industries seeking locations in the municipalities bordering the western part of the River adversely impact on the supply of waterfront lands.

- Of the 2,460 acres of available waterfront lands, 1,095 are held for marine terminal development, 500 are expected to be lost to urban development and at least 400 are expected to be absorbed by non-water-dependent industries. This leaves only 430 acres for water-dependent industries. As this shortage becomes apparent during the 1990's, pressure will increase to include additional land in the waterfront industrial land inventory. If no new lands are added, there will be little or no waterfront industrial lands in the study area by the turn of the century.

- There will be an adequate supply of land for marine terminal uses in the study area from:

    •Excess capacity at existing terminals
    •Fraser Port's marine terminal landbank
    •Possible expansion of Roberts Bank.

  With the additional capacity that can be created at existing terminals, plus Fraser Port's 1,000+ acre landbank, there are adequate lands to accommodate marine terminal growth in the estuary for at least 25 years. Furthermore, if Roberts Bank expands its marine terminal facilities, there may be more than sufficient deep sea terminal capacity at Fraser Surrey, Fraser Richmond, Annacis Auto Terminals and Fraser Wharves to accommodate growth of deep sea cargoes for an even longer period.

3.0 FRASER RIVER ESTUARY LAND USE TRENDS

The Work Group has identified estuary land use trends and their possible impact upon marine terminals and water-dependent industries during 1990 to 2010. The Work Group also provides comment on how these trends may evolve after the study period.

Discussion of these trends is based upon the following assumptions:

- The regional economy will continue to grow and benefit from its role as a participant in and facilitator of trade with Canada's Pacific Rim trading partners.

- Regional population growth will remain high, largely as a consequence of increased immigration to the region. This will create a greater demand for waterfront locations throughout the estuary from residential, commercial and recreational uses.

- Throughout the study period, Vancouver Port Corporation will be a very competitive force in attempting to attract marine terminals and support users to Vancouver harbour locations. After the study period (2010+), their limited land supply, high land costs, access problems and public concern with environmental issues in the harbour will reduce their competitiveness, resulting in a shift of some existing and all major new water-dependent industries to the Fraser River estuary.

- The movement of heavy industry from the North Arm will accelerate during the study period as a result of the increasing demand for higher density industrial, residential and commercial development in that area. If current trends continue, many areas of the North Arm could experience redevelopment similar to Vancouver's south False Creek.

- The municipalities of Richmond and Delta will encourage the development of additional water-dependent industries in southeast Richmond and in Delta along River Road and at Roberts Bank. These three areas represent the greatest source of future land supply for marine terminals and water-dependent industry in the region.

- Public concern with environmental and habitat issues will increase, creating resistance to increasing the supply of land for industrial development throughout the estuary.

Following are the major land use trends that the Work Group expects to occur during the next 20+ years.

3.1 BETWEEN 1990-1995

- The migration of industry from western to eastern industrial areas of the region will accelerate, transforming the industrial market so that most new industrial development occurs south of the Fraser River.

- All existing industrial parks in the study area will be fully developed and new industrial park development will emerge in the Big Bend area of Burnaby, River Road in Delta, Surrey and Langley.

- Residential development will expand along the waterfront in New Westminster and Vancouver's Southeast Marine Drive.

- Continued development and improvement of terminal facilities in Burrard Inlet will occur, ensuring that there will be sufficient capacity in Vancouver harbour to accommodate the growth of bulk, mini-bulk, general cargo and container throughputs.

- Roberts Bank's remaining 125 acres will be absorbed.

By the mid 1990's, the perception that there is a large supply of waterfront land available to accommodate industrial development will change. Waterfront lands that have been neglected and/or under utilized in the past will be sought by non-water-dependent industries. While it will become increasingly difficult for new or relocating water-dependent industries to find affordable sites in the study area, sites will be available.

3.2 BETWEEN 1995-2000

- Southeast Richmond and River Road in Delta will become the new focal points of industrial development in the region.

- In Burnaby, the Big Bend industrial area will be fully developed.

- Redevelopment of downtown New Westminster and Southeast Marine Drive in Vancouver will lead to increased pressure for further expansion of residential and commercial development into adjacent and other areas along the river. There is likely to be widespread public support for this expansion.

- Recently completed terminal and intermodal yards in Vancouver harbour will enable these facilities to maintain sufficient capacity to accommodate the growth of commodity throughputs. However, problems of access for rail and trucks will increase, causing companies using or contemplating using Vancouver harbour facilities to pursue Roberts Bank and Fraser River locations.

- The future of Roberts Bank expansion could be decided during this period. If approved, it is possible construction could commence during the late 1990's.

- Industrial development activity in Pitt Meadows and Maple Ridge will accelerate, but will continue to be small in comparison with new development activity which will be occurring primarily south of the Fraser River (in Surrey, Langley and Matsqui).

By the end of this period, as waterfront lands in the western part of the region are depleted, water-dependent industries will turn to pursue locations on the Surrey, Langley, Pitt Meadows and Maple Ridge foreshores. During this period, the shortage and high cost of waterfront land will force many water-dependent companies to consider other coastal B.C. and Washington State locations.

3.3 BETWEEN 2000-2010

Southeast Richmond and Delta's River Road will be developed. There will be considerable pressure on both municipalities to expand industrial areas along the Fraser River and for Delta on the Roberts Bank backup lands.

- Without expansion of the Delta and Richmond waterfront industrial areas, there will be virtually no waterfront land available for water-dependent industries downriver of New Westminster. Upriver of the Port Mann Bridge, the supply of waterfront sites will be limited to a small number of infill sites. This land shortage will lead to increased pressure to open up undeveloped areas such as Surrey Bend and Barnston Island.

- An expanded Roberts Bank could be in operation during this period. This expansion could facilitate the movement of some bulk commodity and lumber terminals from Vancouver harbour. Interest in Roberts Bank will be further heightened by growing road and rail access problems in Burrard Inlet and from opposition to further industrial development in Vancouver harbour. This opposition will stem principally from the demand for residential and commercial development and concerns that further industrial development will have adverse environmental impacts.

- With an expanded Fraser Surrey terminal plus existing marine terminals on the Fraser River, there will be more than sufficient capacity to accommodate forecast commodity throughputs in the study area.

- It is during this period that many forest companies and other heavy industrial users on the North Arm could relocate. However, the forest industry will remain the dominant land user in the industrial areas of the North Arm.

- The shortage of land for water-dependent industries will focus debate on the need for a coastal marine terminal and industrial area located at western Iona Island.

- The shortage of land will force many water-dependent industries to alter how they use the river. Some of these changes would involve:

    - More reliance upon team dock facilities located at nearby marine terminals.

    - Locating near marine terminals and relying on truck transportation to move goods and materials to and from the water.

    - Using land more intensely.

Unless actions are taken during the 1990's to increase the supply of waterfront industrial lands and to protect the supply of remaining undeveloped land, there will be a critical shortage of waterfront industrial land by the end of this period.

3.4 BEYOND 2010

- Within 30+ years, most of the movement of heavy industry from the North Arm will have occurred and more intense multi-tenant industrial development, residential and commercial development will be taking place. By way of illustration, the Work Group expects that Mitchell Island and nearby industrial areas will become multiple family residential neighborhoods.

- By 2010, there will be virtually no available waterfront lands for water-dependent industries west of Surrey and Port Coquitlam. To obtain waterfront lands, industry will have to consider locations in the Dewdney Allouette Regional District and the Fraser Valley.

- If Roberts Bank has been expanded, new bulk terminal, marine terminal and other development requiring deep sea berths will center on Roberts Bank, delaying the need for marine terminals on the Fraser River. If Roberts Bank were not approved, new marine terminal development on the Fraser River will accelerate, requiring that additional terminals beyond Fraser Richmond be planned for and developed.

- In spite of changing technology and a reduced reliance upon waterfront locations, the severe shortage of waterfront land may cause many water-dependent industries servicing the Lower Mainland market to locate outside of the region (Washington State, Vancouver Island and coastal B.C. locations).

- In the very distant future, possibly by the late 21st century, continuing growth of the Lower Mainland may require that artificial islands be developed in the Strait of Georgia to accommodate the growth of port and water-dependent industries.

4.0 PORT AND INDUSTRIAL DEVELOPMENT STRATEGY

The increasing demand for land from non-water-dependent industries, residential, commercial, institutional, recreational and other land uses is rapidly depleting the supply of land available for water-dependent industries. As a result, the Work Group has concluded that a critical shortage of land for water-dependent industries (not marine terminals) will emerge during the 1990's and that early in the next century there could be little zoned or designated waterfront land remaining to accommodate the anticipated growth of water-dependent industries in the estuary.

The Work Group believes it is possible to satisfy competing demands for waterfront lands from all land users and presents the *PORT AND INDUSTRIAL DEVELOPMENT STRATEGY* with specific actions that can be utilized by the Management Committee Executive in developing the integrated management plan. With the integrated management plan, governments, industrial users, environmental and conservation interest groups will have an aid in realizing their long-range goals.

STRATEGY #1: ENCOURAGE NODAL DEVELOPMENT

The conflict between industrial and other land users results partly because users have located in ribbon like fashion over much of the length of the study area. Land use conflicts could be lessened if industrial development were to occur in fewer areas.

By concentrating future industrial development in nodes (large industrial areas of 300+ acres), it will be easier to reach consensus on the boundaries between competing uses, minimize land use conflict and conserve the supply of land for water-dependent industries. Figure 2 illustrates the location of major nodes proposed by the Work Group. The selection of these nodes has been based upon the following criteria:

- zoning,
- minimum conflict with other land uses,
- accessibility,
- availability of municipal services,
- expansion potential,
- affordability of land,
- suitability of soils for development.

Examples of existing major industrial nodes in the study area include:

- the North Arm between Marpole and the Knight Street Bridge,
- North Delta, including north east River Road and the Tilbury area,
- Queensborough, New Westminster and Annacis Island,
- Gunderson Slough to Port Mann Bridge.

Industrial nodes that could emerge to accommodate future water-dependent industries are:

- Southeast Richmond and Delta's River Road,
- Port Kells, Barnston Island, Pitt Meadows,
- Western Iona Island and north Sea Island,
- Roberts Bank.

Implementation Considerations:

Consensus must be reached on:
- minimum size of the land parcels,
- minimum service requirements,
- the lead agencies

Action:

The Work Group recommends that FREMP initiate further analyses required to refine the concept of nodal development and promote the concept to its member municipalities and the GVRD.

IMPLEMENTATION OPTIONS IN SUPPORT OF NODAL DEVELOPMENT

A. ENCOURAGE LAND BANKING

Reaching agreement that industrial development should be concentrated in nodes will not eliminate the problem of waterfront lands being rapidly absorbed by non-water-dependent industries. Absorption will accelerate in the future. A solution to this problem is the creation of landbanks the purpose of which would be to ensure an adequate supply of land for water-dependent industries.

Lands which could be considered for landbanks include:

- Fraser River Harbour Commission lands at Fraser Surrey and Fraser Richmond,
- Provincial government and Vancouver Port Corporation's land holdings at Roberts Bank,
- Provincial government lands on western Iona Island.

Fraser Port is already committed to landbanking to meet the need for future marine terminal development. Expanding their mandate to also provide land for other water-dependent industries would do much to ease the looming shortage of land for these industries. There may also be potential for public and private sector joint venture development of industrial landbanks. Most landbanks will include lands which are not adjacent to the water which could be marketed to non-water-dependent industries. Such development could provide the financial incentive for private investors to provide much needed capital for front-end servicing and enable the public sector investor to hold waterfront lands for long-term development.

Implementation:

Landbanks would be created by governments, as there would not be sufficient economic incentives for the private sector alone to undertake such long-term development. Landbanks could be created by federal and/or provincial government ministries and/or crown corporations working independently or together. One role of government is to maintain long-term vision to ensure that lands are not diverted to other uses.

Large capital outlays for land acquisition are not initially required, as federal and provincial governments through various crown corporations, harbour commissions or departments, already have extensive land holdings throughout the study area. What is required, however, is that the federal and provincial governments become convinced of the net benefits of landbanking and adopt policies that enable individual ministries or departments owning land to become involved in the creation and management of landbanks.

Pursuing landbanking in the study area will involve a long and complex process of analysis and negotiation among governments. However, the Work Group believes that landbanks represent the most realistic way of ensuring that lands are assembled and held for future generations of water-dependent industries.

Action:

The Work Group recommends that FREMP undertake additional analyses to define the landbank concept, including its costs and benefits to government owning the land and to the industries which would acquire or lease such lands. These analyses would then be used to assist in promoting the concept to the senior levels of government which would develop and manage the landbanks.

B. ADD ADDITIONAL LANDS TO REGIONAL INVENTORY

The Work Group's supply forecast include only lands that can be expected to become industrial during the next 20-years. This includes lands currently zoned for industrial development, lands designated in Official Community Plans for future industrial use, and areas that municipal planning departments agree inevitably will become industrial.

The supply of industrial land for water-dependent industries could be further expanded if municipal governments were to consider including additional areas to the regional industrial land inventory. The Work Group has identified several areas that it believes should be examined to meet the needs of water-dependent industry after the turn of the century. Each of these areas is environmentally sensitive and their consideration for industrial use will be the subject of much public debate.

These areas include:

- Roberts Bank backup lands,
- Richmond, between No. 2 and 4 Roads on the main arm of the River,
- West of Iona Island (this area has been considered as the location of a coastal marine terminal),
- North shore of Sea Island,
- Barnston Island.

Implementation Considerations:

The Work Group believes that existing regulations and structures to conserve Agricultural Land Reserve (ALR) and designated uses will lead to confrontation as the land base is consumed. Processes must be developed to allow discussion to occur amongst concerned parties.

Action:

The Work Group proposes that the GVRD Technical Advisory Committee monitor the need for additional waterfront industrial areas, propose and encourage the planning and development of additional waterfront industrial areas in the region and along with FREMP, provide member municipalities with technical assistance to facilitate this process.

STRATEGY #2: ENCOURAGE MORE INTENSIVE AND EFFICIENT USE OF PRESENT INDUSTRIAL SITES

The Work Group recognizes the opportunity to improve the efficiencies of land use where sites are not being used to capacity and where there is a chance to combine compatible uses. At the same time, the Work Group sees an opportunity to rehabilitate obsolete sites so that they can be used for other purposes without risk to public safety and with due respect to the Fraser River.

Implementation Considerations:

Industrial users, municipalities, and land agencies must set criteria for future consolidation of industrial uses.

Action:

The Work Group recommends that FREMP explore the feasibility of intensifying and improving use of existing industrial sites by:

- Identifying sites which could be used more intensively or efficiently;
- Identifying and selecting pilot or demonstration projects which could demonstrate the concept;
- Developing a plan for involving the appropriate parties in the planning of the sites and for resolving perceived conflicts;
- Assessing the servicing requirements and costs to resolve problems on the sites;
- Identifying areas no longer being utilized which could be rehabilitated for other uses;
- Identifying mechanisms for cleaning up obsolete sites.

STRATEGY #3: PURSUE A COORDINATED APPROACH TO LONG-TERM WATER DEPENDENT INDUSTRIAL LAND USE PLANNING

The lack of a coordinated approach to planning industrial land use in the region has contributed to a lack of understanding of the need and importance of water-dependent industries in the region. The Work Group supports a regional approach to industrial land use planning.

Implementation:

The Work Group suggests adopting the following objectives for such a planning process:

- Establish regional and municipal object objectives and priorities in providing lands for water-dependent industries,
- Examine alternatives available for municipal governments to ensure maintenance of a viable long-term supply of land for water-dependent industries,
- Support efforts by municipalities to expand the amount of land designated for water-dependent industries,
- Generate accurate and current data regarding the relative relationship between supply and demand requirements. This will indicate emerging economic trends throughout the estuary.

Action:

The Work Group recommends that FREMP advocate a more coordinated approach to planning in the estuary. In particular, it is recommended that the GVRD be encouraged to take the lead in this process, forming a subcommittee to the GVRD's Technical Advisory Committee comprised of representatives from each municipality. This committee would discuss issues in planning for waterfront development, exchange information and reach consensus on how best to ensure an adequate supply of land for water-dependent industry.

STRATEGY #4: REQUIRE INDUSTRY TO BE ENVIRONMENTALLY RESPONSIBLE

FREMP recognizes the role of industry in protecting the quality of the marine, foreshore and upland habitat.

Implementation Considerations:

- There is a need to develop consensus amongst all players on the basic environmental standards for development.

- There is a need to advise industry and developers of expectations for protecting the quality of the environment in constructing new facilities.

Action:

The Work Group recommends that the principles of habitat mitigation and habitat compensation be communicated to industry to ensure that valuable habitat resources are protected. In this regard, the Work Group makes the following distinctions:

- Habitat Mitigation: efforts undertaken to design and create physical structures so that they do not have an adverse impact upon the marine environment. Mitigation may include structure design changes, altered siting or construction timing considerations.

- Habitat Compensation: the replacement of marine habitat lost to development in those circumstances where development is not able to undertake a program of habitat mitigation. Compensation adjacent to the development site is preferable to off-site compensation.

STRATEGY #5: INCREASE AWARENESS AND UNDERSTANDING OF WATER DEPENDENT INDUSTRY NEEDS

It is necessary to enlist the understanding and support of industrial and public users of the river, elected officials, regulators and the interested public to explore alternatives and seek consensus on how best to manage the estuary's industrial land resources.

Implementation:

The process for communicating to the public must be developed to effectively convey the importance and needs of water-dependent industries. Development of the actual events or products could involve the responsible agencies and concerned public.

Action:

The Work Group recommends that FREMP, in conjunction with the GVRD, initiate:

- An Information Program: to disseminate comprehensive information regarding future land use requirements for water-dependent industries, potential conflicts with other uses, and the costs and benefits of pursuing alternate courses of action in providing additional waterfront land, etc.

- An Ongoing Consultation Process: to create the opportunity for interested parties (industrial and public users of the river, elected officials, regulators and the interested public), to participate in the planning process for future marine terminals and water-dependent industries in the estuary.

STRATEGY #6: SUPPORT RECREATIONAL LAND USE IN THE ESTUARY

The Work Group recognizes and supports the need for waterfront recreational areas and endorses the concept of Recreational Units embodied in FREMP's proposed recreation plan.

The Work Group is concerned that, should linear waterfront parks be developed, they should not impede water access for water-dependent industries. Instead, it advocates the development of parks as distinct pods* with industrial activities locating in similar and adjacent pods. These two uses can be linked visually and perhaps by information displays explaining the water-dependent uses of the waterfront land. The Work Group supports linking recreational nodes by parks or trails where this would not adversely impact water-dependent users.

*Note: The term pods is derived from the Recreation Work Group Report.

Implementation Considerations:

Development and recreational interests must agree on the location of proposed industrial nodes or recreational pods and develop compatible linkages.

Action:

The Work Group recommends that additional work be undertaken to ensure that proposed recreational pods are planned to be compatible with existing and future industrial nodes. Towards this end, it is recommended that the Management Committee Executive develop a structure where competing users may meet to exchange views on the future FREMP planning process.

5.0 RESULTS OF THE PUBLIC CONSULTATION PROCESS

5.1 OVERVIEW OF THE PUBLIC CONSULTATION PROCESS

The Port and Industrial Development Activity Work Group considered public input important at a preliminary stage of the work. An earlier draft of the foregoing document was therefore mailed to approximately 265 companies, organizations and individuals representing the three levels of government, industry, tenants on the estuary, developers, industry associations, and public interest groups including environmental, recreational, and business organizations. Respondents were offered three ways of providing their comments:

- by telephone,
- by submitting written response and/or,
- by attending a workshop.

This section of the report is a synthesis of the responses and is presented in two parts:

1.) key areas of concern highlight areas which were raised consistently;
2.) comments pertinent to each of the strategies proposed by the Port and Industrial Development Activity Work Group.

In several instances respondents' words have been used verbatim since these best articulate their various concerns. The strategies offered for consultation and comment differ from those in this document and are presented here as they appeared in the earlier draft. The strategies in this document have been reworked to incorporate comments and advice received from respondents.

5.2 KEY CONCERNS

Five areas emerge as key concerns. These are: loss of waterfront industrial landbase; the need for coordinated and integrated planning; the need for environmental protection to be built into the planning process; the need for public information and education in the implementation of the strategies outlined in this document .

The Problem: Loss of Waterfront Industrial Landbase

This report states what many industries have already observed: that there is need to plan for long-term availability of industrial land use sites. Their experiences illustrate regional development trends. Several respondents who were forced to relocate from False Creek reiterated the need to plan. More than one group suggested that the 'desire for land by non-dependent industries is much higher than your survey indicates and the time frame for purchase is present'. Forest-related companies, which make up the largest group of water-dependent industries, say they are "experiencing firsthand the effect of urban development pressures for land". The combination of the recession and high prices for industrial waterfront land"make offers to purchase it for other purposes unreasonably attractive". One fishing boat operator sees closing down his operation in five years time. His rent jumped from $270 in 1977 to $1000 in 1990. He does not see many options for small operators. Workshop participants predicted continuing job losses as a result of the reduction of the industrial land base. The cost of housing is also a concern. Highly skilled workers needed by water based industries in western municipalities, cannot afford to live in those municipalities. It was noted that future population trends may mitigate this problem.

Representatives of the towing industry expressed concern over the erosion of log storage capacity and the loss of the necessary shipyards and fueling stations which would result in increased costs to their industry. A specific issue raised concerned industry's need to move logs, when required, in order to avoid damage caused by torredoes (a marine burrowing organism). Other issues relative to the log storage management, have been addressed by the Log Management Work Group. The practise of log storage generates opposing views concerning quality of management and environmental impact on the river.

It was suggested that since industrial development is traditionally wasteful and the land not used to capacity, a strategy for dealing with shortage of lands is to more intensively use existing sites. This would necessitate resolving problems in servicing, soil conditions and environmental impact.

Note: The Port and Industrial Development Activity Work Group has included this point as Strategy # 2.

Environmental representatives raised the question as to whether there was a need to plan for water-dependent industry at all, suggesting that moving to other locations was perhaps the better approach, given the biological importance of the Fraser River Estuary. It was also suggested that in some municipalities, such as Delta, it may be more appropriate to consider industrial land use second in priority to environmental protection. This would be especially appropriate in areas where landbanking for environmental protection purposes was being considered.

Need for Coordinated and Integrated Regional Planning

There is overall agreement that there is a need for integrated long-term regional planning and for balancing the needs of industry and the environment. There was concurrence that this should be done by one agency. This agency would be charged with implementing a regional planning process and have the responsibility and authority to enforce the policies. GVRD was suggested as a possible agency although there was no consensus reached. Examining the Green Plan for opportunities to draw the various players together, particularly the federal and provincial governments, may also aid the process.

One important issue to resolve in the regional planning process is the need to raise within municipal governments, their level of understanding of the issues in industrial and environmental development, in particular, specialized waterfront industrial development and environmental implications. It was proposed that a means for doing so might be to hold a series of workshops involving municipal government representatives with industry and public users of the estuary.

Planning issues which were raised include the need:

- for upland zoning to be consistent with water-oriented industrial uses;
- for a process to discuss land use and water use compatibility;
- for a process to evaluate land use decisions;
- to streamline the regulatory processes to encourage the right kind of development;
- to streamline the process for obtaining land for industrial use;
- to obtain municipal commitment to zoning;
- to deal with land use conflicts such as log storage on specific sites.

Other planning issues raised include the rising demand for recreational use of the river as well as transportation and service planning considerations. One organization observed that the demand for recreational areas is increasing markedly faster than population growth. The highest public demand is for park trails and waterfront access. Another agency reinforced that observation. It pointed to the demand for additional recreational uses and support services such as recreational boating, marine, and repair. Figures and forecasts of the actual value of the marine industry to the economy are not yet available, but a study just being released by the province indicates that $1.4 billion/per annum is being spent on the industry by recreation-oriented users. Commercial spending is close to a half a billion. The recreational aspect of boating does have commercial component which must planned for'.

It was felt that 'more emphasis could be placed in the report on transportation and access to property developed under the jurisdiction of the Fraser River Harbour Commission'. A structure is needed to alleviate these problems. 'If such a structure is not in place, the cost of development and maintenance of waterfront property along the Fraser River will outweigh the benefits received'. It was felt that transportation problems could be alleviated if industries were more concentrated (i.e., industrial nodes). The issue of the relocation of River Road was raised with the clear message that the impact on habitat and on local transportation routes would not justify relocation. It was also suggested that, when planning appropriate rail facilities to service a port, interchanges and marshalling yards be included. Service issues raised include linking this planning exercise with the long-term plans and needs of utilities, particularly gas. (Hydro feels that its future needs are already planned for.)

Environmental Protection

The need to apply EARP or to conduct an Environment Impact Study on all proposed and new projects was reinforced repeatedly. It was also suggested that the EARP process apply to expansion of existing activities, for example, to deal with proposals to add sulphate and potash to areas presently used just for coal. Supporting points mentioned include:

- the desire for a proper scientific initial environmental assessment on each development proposal;
- the method for assessing environmentally sensitive areas may not be specific enough.

Several other concerns were raised: the transportation of hazardous chemicals; water quality (i.e., the need to monitor contaminated material entering the water, especially in areas beyond FREMP jurisdiction); the need to expand and strengthen regulations regarding effluent discharge and improve enforcement through, for areas within FREMP's jurisdiction, extending FREMP's role to include enforcement.

Public Education, Information and Consultation

It was pointed out the there are only two processes where there is meaningful public involvement in the decision-making process: EARP and the Major Project Review Process (MPRP). The desire was expressed for full public involvement, particularly in decisions concerning which areas go forward for development. Other areas requiring a program of public information, education and consultation include:

- an information and education program on the role and value of industry in the Fraser River Estuary;
- the need for a public consultation process for all FREMP activity program reports, involving politicians in the process;
- the need for better information on project development proposals in the estuary. For example, proposed development could be advertised through signage such as large ads being placed on land development sites.

Implementation

A number of comments focused on the direction of this report. It is expected that the policy implications of the strategies will be evaluated and a clear implementation plan developed. This would include identification of the lead agencies responsible for its implementation. It was pointed out that other agencies and interest groups are now taking steps to resolve regional planning issues and that opportunities exist to coordinate our efforts. Existing sites might be used as pilot and demonstration projects.

5.3 SUMMARY OF COMMENTS RELATIVE TO SPECIFIC STRATEGIES

Strategy #1: Encourage Nodal Development

There was a great deal of support for this concept. The tendency for water-dependent industries to develop strips rather than nodes was seen as a problem. The object of nodal development is to provide land for the interrelated needs of water-based industry and supporting industries. At the same time, nodes could balance the needs of recreational and environmental uses. The concept of multiple use, of recreational nodes within industrial nodes, was viewed favourably. Other benefits included sharing facilities, such as a dock. A constraint to nodal development is that present road locations do not allow the depth of the land necessary for nodal development. Respondents also wish to see more definitive information regarding nodes and their relationships. Of the industrial nodes identified, western Iona Island, north Sea Island and Roberts Bank were contested. Public consultation would be necessary before developing any one of these areas.

Strategy #2: Encourage Land Banking

There was little support for this strategy. For some respondents, landbanking raised the negative spectre of the Agricultural Land Reserve: for others it presented the opportunity to set aside land for habitat preservation. Also, there was opposition to some sites identified for consideration: 'Given that the Fraser River Estuary is internationally recognized as valuable habitat for migratory species: waterfowl, shorebirds, and raptors; adding Roberts Bank and River Road to the landbank is problematic from this perspective. There will be public concern and a need for input on those areas'. It was noted that one of the implications of landbanking would be loss of estuarine and salt marsh habitat.

From the perspective of one municipality's Chamber of Commerce, landbanking was viewed as "detrimental to the tax base since grants in lieu of taxation have proven unpredictable in the past".

In terms of who might implement this strategy, it was pointed out that 'landbanking is a lot easier for government than private enterprise, simply because private enterprise does not have the financial staying power to remain players on the long-term '. As a result, landbanking is miniscule for private enterprise. 'FRHC or an Economic Development agency should landbank.' The notion that one agency be responsible

was echoed by other respondents, some of whom saw landbanking as the only solution. Ownership of the land by that agency was preferred. Others saw landbanking as subsidization by safeguarding land for the use of industry which cannot compete in open market conditions. Opposition to this strategy came from both industry and environmental representatives.

Strategy #3: Require Industry to be Environmentally Responsible

There is an expectation and understanding that industry should be environmentally responsible. A consensus of how that is measured and effected needs to be further explored. Loss of habitat is a major issue and the principle of habitat compensation was challenged. Respondents felt that:

- industrial activities must not cause habitat loss;
- formerly productive estuarine areas should be considered for rehabilitation;
- habitat compensation is questionable practise, given far-reaching ecological implications;
- there is a need for legislation and enforcement and additional authority given to FREMP to provide the teeth to enforce (industry compliance to regulations);
- there is a need to take into account both conservation and protection. For example, there is a need to protect the Roberts Bank habitat feeding area of the Great Blue Heron.

Strategy #4: Support Recreational Land Use in the Estuary

Two key points emerged. The growing demand for recreational uses, especially along water access, which may not be accounted for in planning. This points to the need to ensure that linkages are made between strategies proposed for this report and those proposed by the Recreational Working Group. Secondly, the need to balance uses and to remain open to the form (linear or pod) appropriate to accommodate recreational uses. Planning should include trails within the industrial nodes with linking linear trails where possible. This is considered an important leisure activity appealing to all ages.

Strategy #5: Pursue Coordinated Approach to Long Term Industrial Land Use Planning

There was overall support for this strategy. As one participant observed: "Who plans the planners?" The problem is how to reconcile various plans and make sure that the conclusion is satisfactory. (This problem was highlighted when two conflicting plans were released in the same year for the same area.) It was felt that pressure for change is happening at a far greater rate than many planners are aware. Until there is a process created, until politicians can be influenced to move from a short-term local basis to a long-term regional perspective, talk will prevail. The terms of reference proposed for a super regional planning process would include: industrial needs, assessment of environmental impact, means of mitigating, compensating and rationalizing environmental impacts and the definition of nodes and jurisdictional implications.

Strategy #6: Increase Awareness and Understanding of Water-Dependent Industry Needs

There was overall support for this strategy. The need to incorporate public consultation into the next steps taken by FREMP toward development of a management plan was strongly emphasized. The plan should include educating the public on the importance of water-based industry.

Proposed Action:

- Hold a series of workshops on water-oriented industrial land use planning. Involve participants representing varied interests, i.e., municipal planners, industry representatives and environmentalists.

Strategy #7: Add Additional Lands to the Regional Inventory

Opposition to this strategy centered on areas suggested for addition to the industrial land inventory. For example, the Boundary Bay Conservation Committee passed the following motion:

> *"We consider that in light of the Green Plan the strategy concerning port and industrial activity at the Tsawwassen Ferry Terminal and Roberts Bank has no place in the evolution of the Fraser River Estuary".*

In addition, there is opposition to:

- Terminal development off Iona Island which is considered to be an environmentally fragile area;
- Inclusion of Western Iona Island in development plans due to its importance as a recreational area;
- Inclusion of land identified as Agricultural Land Reserve, i.e., Roberts Bank, which is viewed as being 'dangerous considering the value of agricultural land of Delta'.

5.4 SUMMARY

Strategy #2, to encourage intensive use of existing industrial sites, has been added as a result of public input. Other ideas from the consultation process will likely be considered. Once the strategies have been refined to determine the long-range plans for individual areas, this report may be used by industries in various ways, for example, relocation in instances where they occupy sites not slated for a compatible use in the long-term.

Appendix One
Organizations and Individuals Participating in the Public Consultation Process

Many other organizations and companies responded by reviewing the report and by asking us to keep them informed. The following list reflects those who responded through written commentary, telephone discussions or by participating in a workshop. It excludes comments received from the Port and Industrial Development Activity Work Group members.

Written and Telephone Submissions

BC Gas
BC Hydro
Boundary Bay Conservation Committee
Bella Coola Fisheries
Council of Forest Industries
Outdoor Recreation Council
S & R Sawmills
Lefarge Concrete
Surrey Chamber of Commerce
Southern B.C. Railway
Interwest Properties
Westshore Terminals
Canadian Petroleum Institute
Small Craft Harbours Branch, Fisheries and Oceans
Ron Francis Marine
Mary Taitt (Individual)
Wreck Beach Preservation Society
IWA Canada-Local 1-357
Western Economic Diversification
Scott Paper

Appendix One
Organizations and Individuals Participating in the Public Consultation Process (Cont'd)

Organizations/Companies Represented by Workshop Participants

CN Rail
Planning, Corporation of Delta
CANFOR Corporation
Vancouver Natural History Society
Rivtow
Council of Marine Carriers
Vancouver International Airport
Community Forum on Airport Development
Western Forest Products
Northview Enterprises
Boundary Bay Conservation Committee
Westminster Tug Boats
B.C. Ministry of Transportation and Highways
Planning, District of Surrey
Fraser River Coalition
Interwest Development Corp.
G.P. Rollo & Associates Ltd.
Fraser River Harbour Comm.
FREMP
Wreck Beach Preserv.Society
Burns Bog
Harken
SPEC
Ebco
IWA-Canada; Local 1-357

Appendix Two
List of FREMP Work Groups

Log Management

Recreation

Habitat

Waste Management

Water Quality

Environmental Emergencies

Navigation and Dredging

Port and Industrial Development Activity